

**OMNIVIEW
XL/XE**

By

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NEW OMNIVIEW XL/XE FEATURES

OMNIVIEW XL/XE now has several new features which solve the compatibility problem associated with the 800XL/130XE. OMNIVIEW XL/XE does this by having an ultra compatible 400/800 style OS which will copy itself into RAM, freeing up the \$C000 page. In addition, OMNIVIEW XE has resident ramdisk handlers which allow you to use the extra 64k of RAM in the XE as an ultra fast disk drive. Add the other outstanding features of OMNIVIEW XL/XE, namely, 80 column emulation under SpeedScript 80, Letter/Data Peflect, BASIC, MAC65, ATTR8000 CPM, etc., and the Fastchip flooding point package for significantly faster math operations, and you have an outstanding value for any 800XL/130 XE owner!

Improved 400/800 compatibility:

(Developed by CAL COM, 5295 Cameron Drive #505, Buena Park, Ca 90621) The OMNIVIEW XL/XE operating system runs virtually every piece of software written for the Atari computer. Besides being coded closely to the older OSB, it also has the capability of copying itself into RAM, freeing up the \$C000 page for your applications. This means 4k more RAM for programs like Visicalc, modern programs, word processors, etc. It also means added compatibility with highly protected games which look for ROM in the \$C000 page as a part of their misguided protection schemes (e.g. Electronics Arts).

To copy the OS into RAM (from \$D800 to \$FFFF), hold down the SELECT key while pressing RESET. To restore the OS to ROM, press RESET by itself. From this point on, the RAM version of the OS will be preserved, even if you switch the OS to ROM and back to RAM. Thus, any changes you may make to the OS in RAM remain in effect as long as you do not power down. In addition, if you hold down the SELECT key during powerup, the OS will be copied into RAM and it will stay in RAM even if you press RESET. Please note that the 80 column emulation is not available when running the OS out of RAM.

There are two other features designed to give increased compatibility: the cursor speed and the OPTION key BASIC activation during powerup. The cursor speed is the same as the original XL/XE OS to remain compatible with the SYNAPSE software (SYNCALC, SYNFILE+, etc.) which speed up the cursor. Also, the meaning of the OPTION key during powerup is just opposite of the original OS: hold down the OPTION key to activate BASIC. This seems to be the preference of most people. In addition, there is the added function of the HELP key. Instead of using CTRL-1 the HELP key now functions as the scroll control for program listings.

Turning on 80 columns:

80 column emulation is activated from the keyboard by typing CTRL-a and hitting RESET. To return to 40 columns, type a key without CTRL and hit RESET. Don't try this if running OS in RAM. Also see "Technical Details".

Changing screen colors:

Switch the screen colors in the 80 column mode by holding down the START key while typing a letter. If this does not work (as in Letter Perfect), try holding down the START key while pressing RESET. However, since this combination is also used to install the ramdisk handlers, read the next section before using this second technique.

Installing the resident Ramdisk handlers: (130XE only)

The resident Ramdisk handlers in OMNIVIEW XL/XE allow you to use the extra 64k RAM of the 130XE as an ultra fast 512 sector single density disk drive in conjunction with any DOS which uses standard SIO calls (SE459 and SE453) and does not hide itself underneath the cartridge or OS (e.g. Atari 2.0s, MYDOS, SMARTDOS, etc.). In addition you will find it possible to use the Ramdisk with boot programs like Letter and Data Perfect.

The installation is simple: Type a number (1 to 8) corresponding to the drive number you wish to assign the Ramdisk, hold down the START key, and press RESET. (Note: If you are using DOS 2.0 and it is not configured for more than 2 drives, it will be necessary to configure it accordingly. First boot up BASIC with DOS 2.0, then, after you have a 'Ready' prompt type 'POKE 1802,15' for 4 drives or 'POKE 1802,131' for 8 drives. Now go to DOS, write the DOS files back out to the disk. You have now configured DOS to accept either 4 or 8 drives online.) Continue to hold the START button down until DOS returns or you go into BASIC. The reason for this is to allow the ramdisk handler enough time for the installation process. If you do not hit a number prior to pressing START/RESET, drive 1 will be assumed. In Letter/Data Perfect this combination is also used to change the screen colors, so assign the Ramdisk as drive 3 if you do not wish to use it in these environments. For example, in BASIC:

1) Type DOS to go to DOS. Now type 2 and START/RESET to install the Ramdisk as drive 2.

2) Since you are now back in Basic, go to DOS again, format and write DOS files to drive 2. (Note that we suggest doing a directory on the drive # you have assigned the ramdisk to. This is to show the DOS that the drive exists)

3) Now type 1 and START/RESET to install the Ramdisk as drive 1 if you so desire.

You can use the enclosed files on the SpeedScript 80 diskette to install the ram disk handlers. The files named INSTALL1 and INSTALL2 are the ramdisk installation files. To use them simply load them from DOS depending on

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which drive you wish to assign the ramdisk. You will still have to format the disk you have assigned to be the ramdisk. Again we suggest doing a directory on the drive number the ramdisk has been assigned.

To create your own file in assembly language type as follows:

LDA #2(the 2 denotes the drive number, this can be changed)

STA \$94

LDA \$D301

AND # \$7F

STA \$D301

JSR \$CFAE

LDA \$D301

ORA # \$80

STA \$D301

RTS

Note that any attempt to use more than 512 sectors of the Ramdisk will result in an I/O ERROR.

The Overview of OMNIVIEW XL/XE

OMNIVIEW XL/XE takes advantage of the high resolution graphics mode built into the ATARI to generate an 80 column screen editor essentially identical to the ATARI screen editor (E., S.). Thus, you can use OMNIVIEW XL/XE in any environment where you would normally use the 40 column "E." (e.g. BASIC, Assembler/Editor, Mac/65, BASIC XL, modem programs, etc.). The character font was specially designed to be legible on an ordinary TV set. A monochrome monitor is recommended, but not really necessary for casual 80 column operation. The Bit-3 versions of LJK's 80 column Letter and Data Perfect have been modified to support OMNIVIEW XL/XE, along with SpeedScript 80. Other programs are very likely to follow once software developers realize the potential of the OMNIVIEW XL/XE.

Use of OMNIVIEW XL/XE 80 column E.:

You can activate the 80 column mode in most environments (e.g. BASIC, DOS, etc.) by hitting CONTROL a-RESET. This will do a normal warmstart except that 40 column E. and S. will be replaced by 80 column E. and S. In addition, the 80 column mode can be activated from assembly language with 'JSR C001' or from BASIC with 'X=USR(49152)'. Once activated, the 80 column E. acts just like the ATARI 40 column E. except for a few minor points. First, the logical line is 80 characters long (1 physical line) instead of 120. If you wish to edit a line longer than 80 characters, as you might in BASIC, hit SYSTEM RESET to take you back to 40 column mode. Secondly, you cannot set the tabs as you can in 40 column mode. Thirdly, neither split screen nor

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line drawing is supported. However, there is a feature which will allow a mixture of 80 column text and graphics on the screen. This will be described later.

Thus, any program which uses pure E: in its simplest form (no split screen or line drawing) for its screen I/O should work in 80 column mode. Even programs which reference and manipulate internal E: variables (ROWCRS, COLCRS, LMARGN, RMARGN, OLDCHR, etc.) should work fine because every effort was made to preserve the meanings of these variables in 80 column mode. One possible exception would be a program which relies on characteristics specific to a 40 column screen like, for instance, that the line will wrap at the 40th column. Likewise, programs like VISICALC, ATARIWRITER, MEDIT, etc. will not work because their internal design assumes a 40 column screen.

Theory Behind OMNIVIEW XL/XE

OMNIVIEW XL/XE uses ANTIC mode F (BASIC GRAPHICS 8), which gives you a resolution of 320 by 192 pixels. If you use a 4 by 8 character cell, this gives you exactly 80 columns by 24 rows. One drawback to this scheme is that it uses \$1E00 bytes (almost 8k) of memory for the screen data alone. This is rarely a problem and, when it is, you can always drop into the 40 column mode anyway. Another drawback is that the format of the screen data is not nearly so convenient as BASIC GRAPHIC 0 (which is essentially stored as ATASCII). Each character must be translated to pixel data represented by bits in noncontiguous bytes in screen memory. This gets especially tricky when E: goes to read a character from the screen! This requires a search of the character data table to find a match for the pixel data representing that character. You can see how this could be quite slow, but this part of the code has been optimized for speed and the small delay is hardly noticeable. For example, it will take a fraction of a second longer for the machine to respond when you type a line of BASIC and hit RETURN.

Technical Details

When you activate 80 column mode with CTRL-a/RESET, 'JSR \$C001', or 'X = USR(49152)', OMNIVIEW XL/XE initializes the 80 column screen and installs the 80 column E: and S: in the handler address of the table at \$31A(HATABS). Afterwards, all CIO calls to E: and S: will get vectored into OMNIVIEW XL/XE. By the way, when OMNIVIEW's E: GET CHAR routine fetches a character from the keyboard, it vectors through the K: entry in HATABS instead of checking like the OS does and calling the keyboard handler directly. This would allow you to redirect the keyboard input if you so desire.

As mentioned earlier, there is a way to mix 80 column text and graphics on the same screen. While the first line of text is always the top row, the last is set with the variable BOTSCR (\$2BF), which ranges from 0 to 23. If you were to set BOTSCR to anything less than 23 then you could use the remaining lower part of the screen for anything you wanted by simply modifying the display list. Also, since OMNIVIEW uses graphics 8 to generate the 80 column characters, there is nothing to keep you from drawing on the screen directly. This opens up all sorts of exciting possibilities which were inconceivable with the other dedicated 80 column boards for the ATARI. For example, wouldn't it be nice to have a word processor which would allow you to draw diagrams in with the text? Some software developer ought to jump on that one and incorporate that into the enclosed 80 column version of Speed Script 80 that comes with the OMNIVIEW XL/XE at no charge. Contact CDY for the source code for Speed Script 80.

Here is a memory map of the screen data area:

RAMTOP*256
 RAMTOP*256-\$126 ->RAMTOP HOLDS THE NUMBER OF PAGES OF RAM
 RAMTOP*256-\$1F0 ->FUTURE BUFFER FOR LAST LINE DELETED (LINBUF)
 RAMTOP*256-\$1FF0 ->BEGINNING OF DISPLAY LIST
 RAMTOP*256-\$2001 ->BEGINNING OF DISPLAY DATA (SAVWSC)
 ->LAST BYTE OF FREE RAM (MEMTOP)

Here are the definitions of OMNIVIEW XL/XE variables:

DSTAT \$4C USED TO SAVE STATUS
 TEMP \$50 TEMPORARY REGISTER
 HOLD1 \$51 TEMPORARY REGISTER
 LMRGN \$52 LEFT MARGIN (0-79)
 RMRGN \$53 RIGHT MARGIN (0-79)
 ROWCRS \$54 ROW CURSOR IS ON (0-23)
 COLCRS \$55 COLUMN CURSOR IS ON (0-79); DISCERNS BETWEEN ODD AND EVEN CHARS DURING SCREEN OUTPUT (OUTCHU)
 LFTMSK \$56 INVERSE VIDEO MASK FOR EVEN COLUMNS
 RGTMSK \$57 INVERSE VIDEO MASK FOR ODD COLUMNS
 SAVWSC \$58 2 BYTE POINTER TO BEGINNING OF DISPLAY DATA
 OLDCHR \$5D INTERNAL FORMAT OF CHARACTER UNDER CURSOR
 OLDADR \$5E 2 BYTE POINTER TO CURRENT CURSOR POSITION (ALSO SEE COLCRS) WITHIN SCREEN DATA
 ADDRESS \$64 2 BYTE POINTER TO CURRENT CHARACTER
 MLTtmp \$66 2 BYTE POINTER WHERE NEXT CHAR WILL BE OUTPUT
 RAMTOP \$6A (ALSO SEE COLCRS) WITHIN SCREEN DATA
 BUFCNT \$6B NUMBER OF 256 BYTE PAGES OF RAM AVAILABLE
 BUFSTR \$6C BUFFER COUNT DURING E: GET CHAR
 RETAINS START OF LOGICAL LINE DURING E: GET CHAR (ROW/COL)
 DILST \$70 TEMP 2 BYTE PTR USED DURING GENERATION OF DISPLAY LIST
 TEMPI \$79 TEMPORARY REGISTER
 INSDAT \$7D TEMPORARY REGISTER
 LINBUF \$7E 2 BYTE POINTER TO A LINE BUFFER JUST PAST DISPLAY LIST
 GPROR \$26F PRIORITY SELECTION REGISTER
 HOLD3 \$29D TEMPORARY REGISTER
 ESCFLG \$2A2 ESCAPE FLAG; USED TO DISPLAY CTRL CODES
 TMPROW \$2B8 TEMPORARY STORAGE FOR ROWCRS
 SCRF LG \$2BB SCROLL FLAG; SET IF SCROLL OCCURRED
 SHFLOK \$2BE FLAG FOR SHIFT AND CONTROL KEYS
 BOTSCR \$2BF THE NUMBER OF TEXT ROWS AVAILABLE FOR PRINTING
 MEMTOP \$2E5 2 BYTE POINTER TO THE TOP OF FREE MEMORY
 CRSNH \$2F0 CURSOR INHIBIT FLAG; NON-ZERO TURNS CURSOR OFF
 ATACHR \$2FB LAST ATASCII CHARACTER READ OR WRITTEN
 CH \$2FC INTERNAL HARDWARE VALUE OF THE LAST KEY PRESSED
 DSPFLG \$2EE DISPLAY FLAG; NON-ZERO WILL DISPLAY CTRL CHARS
 SFLAG \$2FF START/STOP FLAG; NON-ZERO WILL SUSPEND SCREEN OUTPUT

Use of OMNIVIEW XL/XE WITH LJK'S Letter Perfect

Any version of Letter Perfect which supports the Bit-3 board can, with the appropriate patches, be made to work with OMNIVIEW XE/XL. Some special fixed entry points were added to OMNIVIEW XE/XL to provide the necessary hooks and these can be used in your own software if needed:

CURSU SCFBI TURN ON CURSOR (OLDADR (SSE)
 CURSFJ SCFBA TURN OFF CURSOR (OLDADR (SSE)
 DELRTU SCFBT CLEAR TO EOL BASED UPON MLTtmp (\$66) AND COL # IN REG Y
 OUTCHU SCFBA OUTPUT CHAR IN ACC TO SCREEN (MLTtmp (\$66) AND COLCRS (\$55)
 SCROUJ SCFBD SCROLL SCREEN UP
 SCRLLD SCFCD SCROLL SCREEN DOWN

Here are the patches to the 80 column side of Letter Perfect Version 3.0. Use OMNIMON or any sector editor to modify a backup of the original disk (use and sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For \$10.00, CDY will do the patches for you. Simply send a backup copy of the 80 column side of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting (214-235-2146).

SECTOR \$2D BYTE \$30:
 WAS SEC
 NOW SD9

SECTOR \$2D BYTE \$53:
 WAS \$65 EA 48 0A 0A 0A 0A 85
 \$64 68 4A 4A 4A 4A 85 65
 NOW SEA EA 85 64 A9 00 85 65
 \$8A 48 20 86 25 68 AA 60

SECTOR \$2D BYTE \$72:
 WAS \$A5 EA 69 04 29 7F 85 EA
 \$20 86 25 20 BF 25
 NOW \$8A 48 20 BD CF 68 AA A5
 \$58 85 64 A5 59 85

SECTOR \$2E BYTE \$00:
 WAS \$20 4B 25 4C BF 25 A5 EA
 \$20 55 25 A9 0D 8D 80 D5
 \$A5 64 8D 81 D5 A9 0C 8D
 \$80 D5 A5 65 8D
 NOW \$65 4C F7 25 BF 25 A2 06
 \$06 64 26 65 CA D0 F9 A5
 \$58 18 65 64 85 64 A5 59
 \$65 65 85 65 60

SECTOR \$2E BYTE \$47:
 WAS \$A9 00 20 FF 25 C8 C0 50
 \$90 F3 60 A4 55 98 18 65
 \$64 85 66 A5 65 69 00 85
 \$67 A9 13 8D 80 D5 A5 66
 \$8D 81 D5 A9 12 8D 80 D5
 \$A5 67 8D 81 D5 A9 1F 8D
 \$80 D5 AD 80 D5 10 FB 60
 NOW \$8A 48 20 B7 CF 68 AA A0
 \$50 38 60 A4 55 98 4A 18
 \$65 64 85 66 A5 65 69 00
 \$D0 13 85 EA 98 48 8A 48
 \$A5 EA 20 BA CF EA EA EA
 \$68 AA 68 A8 60 85 67 60
 \$20 BF 25 4C 4B 25 EA 60

SECTOR \$2F BYTE \$00:
 WAS \$48 78 68 8D 85 D5 20 F9
 \$25 28 60 20 D2 25 A9 0F
 \$8D 80 D5 A5 66 8D 81 D5
 \$A9 0E 8D 80 D5 A5 67 8D
 \$81 D5 A9 09 48 A9 0A 8D
 NOW \$48 78 68 20 E1 25 28 60
 \$25 28 60 20 D2 25 20 15
 \$26 20 B1 CF 60 A5 66 85
 \$5E A5 67 85 5F 60 67 8D
 \$81 D5 A9 09 20 B4 CF 60

SECTOR \$2F BYTE \$40:
 WAS \$A2 10 8E 08 D5 CA 8E 80
 \$D5 BD CF 13 8D 81 D5 CA
 \$10 FA
 NOW \$20 01 C0 A5 58 85 9E A6
 \$59 CA CA 86 9F EA EA EA
 \$A2 FF

SECTOR \$2F BYTE \$72:
 WAS \$20 86 25
 NOW SEA EA EA

OMNIVIEW XL/XE with LJK's Letter Perfect Version 3.2, 3.3

Here are the patches to the 80 column side of Letter Perfect Version 3.2, 3.3. Use OMNIMONXL of any sector editor to modify a backup copy of the original disk (use any sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For \$10.00, CDY will do the patches for you. Simply send a backup copy of the 80 column side of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting (214-235-2146)

SECTOR \$2D BYTE \$39:
 WAS SEC
 NOW SD9

SECTOR \$2D BYTE \$5C:
 WAS \$65 EA 48 0A 0A 0A 0A 85
 \$64 68 4A 4A 4A 4A 85 65
 NOW SEA EA 85 64 A9 00 85 65
 \$8A 48 20 8F 25 68 AA 60

SECTOR \$2D BYTE \$7B:
 WAS \$A5 EA 69 04 29
 NOW \$8A 48 20 BD CF

SECTOR \$2E BYTE \$00:
 WAS \$7F 85 EA
 NOW \$68 AA A5
 \$58 85 64 A5 59 85
 \$20 8F 25 20 C8 25 A5 EA
 \$20 54 25 4C C8 25 A5 EA
 \$20 5E 25 A9 0D 8D 80 D5
 \$A5 64 8D 81 D5 A9 0C 8D
 \$80 D5 A5 65 8D \$65 65 85 65 60

SECTOR \$2E BYTE \$50:
 WAS \$A9 00 20 08 26 C8 C0 50
 \$90 F3 60 A4 55 98 18 65
 \$64 85 66 A5 65 69 00 85
 \$67 A9 13 8D 80 D5 A5 66
 \$8D 81 D5 A9 12 8D 80 D5
 \$A5 67 8D 81 D5 A9 1F 8D
 NOW \$8A 48 20 B7 CF 68 AA A0
 \$50 38 60 A4 55 98 4A 18
 \$65 64 85 66 A5 65 69 00
 \$D0 13 85 EA 98 48 8A 48
 \$A5 EA 20 BA CF EA EA EA
 \$68 AA 68 A8 60 85 67 60

SECTOR \$2F BYTE \$00:
 WAS \$80 D5 AD 80 D5 10 FB 60 08
 \$48 78 68 8D 85 D5 20 02
 \$26 28 60 20 DB 25 A9 0F
 \$8D 80 D5 A5 66 8D 81 D5
 \$A9 0E 8D 80 D5 A5 67 8D
 \$81 D5 A9 09 48 A9 0A 8D
 NOW \$20 01 C0 A5 58 85 9E A6
 \$59 CA CA 86 9F EA EA EA
 \$A2 FF

SECTOR \$2F BYTE \$49:
 WAS \$A2 10 8E 08 D5 CA 8E 80
 \$D5 BD CF 13 8D 81 D5 CA
 \$10 F4
 NOW SEA EA EA

SECTOR \$2F BYTE \$7B:
 WAS \$20 8F 25
 NOW SEA EA EA

OMNIVIEW XL/XE with LJK's Letter Perfect Version 6.0 thru 6.5

Here are the patches to Letter Perfect Version 6.+ . Use OMNIMONXL or a sector editor to modify a backup copy of the original disk (use any sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For \$10.00 CDY will do the patches for you. Simply send a backup copy of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting.

SECTOR \$62 BYTE \$1A:
 WAS \$31 02 CA
 NOW SE6 02 EA

SECTOR \$63 BYTE \$0D:
 WAS \$65 CF 48 0A 0A 0A 0A 85
 \$64 68 4A 4A 4A 4A 85 65
 NOW SEA EA 85 64 A9 00 85 65
 \$8A 48 20 C6 08 68 AA 60

SECTOR \$63 BYTE \$2C:
 WAS \$A5 CF 69 04 29 7F 85 CF
 \$20 C6 08 20 F2 07 20 85
 \$07 4C
 NOW \$8A 48 20 BD CF 68 AA A5
 \$58 85 64 A5 59 85 65 4C
 \$E0 07

SECTOR \$64 BYTE \$42:
 WAS \$A9 13 8D 80 D5 98 18 65
 \$64 85 66 8D 81 D5 A9 12
 \$8D 80 D5 A5 65 69 00 85
 \$67 8D 81 D5 A9 1F 8D 80
 \$D5 AD 80 D5 10 FB
 NOW \$98 1A 18 65 64 85 66 A5
 \$65 69 00 85 67 60 85 CF
 \$98 48 8A 48 A5 CF 20 BA
 \$CF 68 AA 68 A8 60 20 F2
 \$07 4C 85 07 EA EA

SECTOR \$64 BYTE \$66:
 WAS \$8D 85 D5
 NOW \$20 D0 07

SECTOR \$64 BYTE \$6A:
 BYTE \$6A: WAS \$4C
 NOW \$60

SECTOR \$65 BYTE \$0C:
 WAS \$A0 0F 8C 80 D5 A5 66 8D
 \$81 D5 88 8C 80 D5 A5 67
 NOW \$20 77 08 20 B1 CF 60 A5
 \$66 85 5E A5 67 85 5F 60

SECTOR \$65 BYTE \$17:
 WAS \$A2 10 8E 08 D5 A2 0D 8E
 \$80 D5 BD 02 08 8D 81 D5
 \$CA 10 F4 E8
 NOW \$20 01 C0 A9 01 85 0C A9
 \$C0 85 0D EA EA EA EA EA

SECTOR \$65 BYTE \$3D:
 WAS \$20 C6 08
 NOW SEA EA EA

SECTOR \$65 BYTE \$46:
 WAS \$20 E3 07 29 20 F0 F9 A0
 \$0C 8C 80 D5 A5 CF 20 8F
 \$07 8D 81 D5 C8 8C 80
 NOW \$A2 06 06 64 26 65 CA L0
 \$F9 A5 58 18 65 64 85 64
 \$A5 59 65 65 85 65 60

SECTOR \$66 BYTE \$4D:
 WAS \$0D 84 0C
 NOW \$0B 84 0A

SECTOR \$79 BYTE \$48:
 WAS \$42 69 74 20 33 20 66 75
 \$6C 6C 2D 76 69 65 77 20
 \$38 30
 NOW \$AF 4D 4E 49 56 49 45 57
 \$20 38 30 20 43 6F 6C 75
 \$6D 6E

SECTOR \$66 BYTE \$6B:
 WAS \$63 6F 6C 75 6D 6E
 NOW \$52 2E 49 2E 50 2E

OMNIVIEW XL/XE with Data Perfect Version 2.0 thru 2.5

Here are the patches to 80 column Data Perfect. Use OMNIMONXL or any sector editor to modify a backup copy of the original disk (use any sector copier to make the backup). DO NOT MODIFY THE ORIGINAL DISK! For \$10.00 CDY will do the patches for you. Simply send a backup copy of the disk along with a check to CDY. For patches to other versions, contact CDY Consulting.

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SECTOR $02 BYTE $06:
WAS $31
NOW $E6
SECTOR $04 BYTE $02:
WAS $30
NOW $E5
WAS $31
NOW $E6
SECTOR $05 BYTE $1E:
WAS $A2 69 74 20 33 00 33 3E
NOW $AF 4D 4E 49 56 49 45 57
S20 20 41 75 73 74 69 6E
S20 46 72 61 6E 6B 6C 69
S6E
S30
SECTOR $09 BYTE $46:
WAS $30
NOW $E5
WAS $31
NOW $E6
SECTOR $8F BYTE $57:
WAS $A8 4A 4A 4A 4A 85 E1 68
NOW $85 E0 A9 00 85 E1 98 48
S0A 0A 0A 0A 85 E0
S20 6D 0D 68 A8 60
BYTE $6F:
WAS $8D 85 D5 20 67 0D
NOW $20 54 0D EA EA EA
WAS $00
NOW $20
BYTE $59:
WAS $F8 60 20 44 0D AD 83 D5
NOW $F6 60 20 44 0D BD 80 04
WAS $A0 0F 8C 80 D5 A5 66 8D
NOW $A5 66 85 5E A5 67 85 5F
S81 D5 88 8C
S20 B1 CF 60
BYTE $7B:
WAS $A9 20 A0 0A
NOW $20 B4 CF 60
SECTOR $91 BYTE $0D:
WAS $7B
NOW $83
BYTE $46:
WAS $A9 13 8D 80 D5 98 18 65
NOW $98 4A 18 65 E0 85 66 A5
S80 85 66 8D 81 D5 A9 12
S8D 80 E5 A5 E1 69 00 85
S8E 8D 81 D5 A9 1F
S98 48 8A 48 A5 56 20
S67 8D 81 D5 A9 1F
S9F 88 8A 48 A8 60
BYTE $6D:
WAS $70 50 5B 39 19 04 18 18
NOW $A0 06 06 E0 26 E1 88 D0
S78 09 20 09 00 00 A2 10
S79 A5 58 65 E0 85 E0 A5
S8E 08 D5
S59 65 E1
SECTOR $92 BYTE $00:
WAS $CA 8E 80 D5 BD 6D 0D 8D
NOW $85 E1 60 20 01 CO EA EA
S81 D5 CA 10 F4
SEA EA EA EA EA

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USE of OMNIVIEW XL/XE with ATTR8000

OMNIVIEW XL/XE has a built in terminal emulator for use with the ATTR8000 which provides a serial interface for communication with the ATR and most of the standard cursor controls necessary for operation with CPM programs. The terminal emulator which will be referred to as 'ATTRMON' from this point on, can be called up at any time and it is even possible to switch back and forth between the ATARI and CPM environments.

Turning on ATTRMON

First of all you must activate the 80 column OMNIVIEW XL/XE screen editor (e.g., with CONTROL-A RESET). Then hold down the START, SELECT, and OPTION buttons and type any letter on the keyboard. You should hear the drive(s) reset and the ATTRMON header should appear after a couple of seconds. Now put in your CPM system disk and type 'B(return)' to boot up CPM. While ATTRMON is active, the START button will allow you to switch screen colors. (By the way, even in ATARI mode you can switch screen colors by holding down the START button and typing any key. This also holds true of powerup, if you press the START button after the disk boot process has begun and hold it down until the boot is finished. This allows you to change the screen colors of Letter Perfect.)

Leaving ATTRMON

Leave ATTRMON in almost the same way you entered it, i.e., by holding down the START, SELECT, and OPTION buttons, but this time it is not necessary to type another key. You will then see the command 'GOATARI' appear on the screen. This is to fetch the intrinsic command 'GOATARI' which is used to reset the ATR from CPM so that the drives can once more be accessed in the ATARI environment. To create this file, use DDT as follows:

- 1) Under CPM, insert a disk with DDT on it and type 'DDT(return)' to enter DDT.
- 2) Type 'A100(return) JMP DF00(return)(return) GO'.
- 3) Back at the command level, type 'SAVE 1 GOATARI.COM(return)'.

The short file 'GOATARI.COM' will have to be on any CPM disk from which you might want to return to the ATARI environment. The alternative is to reach behind the ATR and reset it whenever you return to the ATARI environment.

Technical Details

The ATTRMON portion of OMNIVIEW XL/XE resides in what was the diagnostic portion of the XL/XE operating system. This gets mapped in from \$5000 to \$57FF whenever ATTRMON is active, but is otherwise deselected. The serial input buffer is as large as possible to prevent the ATR from over-running the OMNIVIEW XL/XE screen output, which is relatively slow compared to the serial baud rate. This however has a nice side effect: whatever

was last printed to the CPM console (CON;) will remain in the buffer when you return to the ATARI mode.

If, for example, you were in DOS when you went to CPM, you will return directly to DOS when you leave CPM. You could then do a binary save on memory starting at \$5800 until the end of user memory if you so desire. Thus, if you had just typed a text file under CPM, you would now have the text in an ATARI file. All that remains is to clean it up with a text editor. OMNIVIEW XL/XE further simplifies the task by converting all \$0D's and \$0A's (CRLF's) to \$00 and \$9B, respectively, when it leaves ATRMON.

ATRMON implements almost all of the CTRL codes and ESC sequences listed in the ATR8000 manual. In fact, the ones not implemented are CTRL->, ESC 7, and ESC Zn. If anyone sees a reason why these or any other features should be incorporated in the ATRMON of OMNIVIEW XL/XE, please contact CDY Consulting and we will be happy to see about adding them.